MICHIGAN
DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION
FOR
DIAMOND GRINDING CONCRETE PAVEMENT

Delete the paragraphs in subsection 603.03.C.1 and C.2, on page 332, of the 2003 Standard Specifications for Construction.

Add the following paragraphs to subsection 603.03.C.1, C.2, C.3, C.4, C.5 and C.6, on page 332, of the 2003 Standard Specifications for Construction.

1. **PH Control Plan.** The Contractor shall sample, test, monitor, manage and if necessary neutralize the diamond grinding residue or slurry prior to disposing or discharging of the slurry. The Contractor shall provide a written ph control plan to the Engineer prior to diamond grinding. The plan shall include the method of sampling, testing, monitoring, managing, and the neutralizing of the grinding residue. The ph control plan shall list all personnel, equipment, supplies necessary to obtain samples, testing methods, method of monitoring, management, and neutralization of the pH if required. The pH control plan shall be administered by a qualified employee of the Contractor. The individual shall have full authority to take all actions for the successful implementation of the pH neutralization. The plan shall specify what actions will be taken in order for the slurry to meet the pH requirements. All costs associated with the sampling, testing, monitoring, managing, neutralizing the pH, collecting, hauling, and disposing of the residue or slurry will be borne by the Contractor.

    a. Sampling and Testing - The residue shall be sampled and tested to determine if the slurry is a corrosive hazardous waste (pH greater than or equal to 12.5 or lower than 2). PH paper with a narrow range or a calibrated pH meter may be used to monitor the slurry pH in the field. At least 4 separate representative samples per day shall be split and tested by a MDEQ certified laboratory as well as by the field method. The pH control plan shall specify what actions will be taken if laboratory results are not consistent with the field results. The Contractor shall also certify in writing that the testing equipment to be used is properly calibrated and the data and correction information should be included in the pH control plan. The Contractor shall maintain the records of all pH tests taken and provide copies of the daily reports to the Engineer. See page 8 for a copy of a “Diamond Grinding Slurry pH Testing Log” form or the Contractor may submit an approved equal. The Contractor shall evaluate the results using the “mean plus standard deviation approach” as described in the Michigan Department of Environmental Quality’s “Verification of Soil Remediation” guidance document or another equally representative sampling strategy. The number of samples tests will vary depending on volume of waste generated, pH range, consistency of the pH slurry, and the area being diamond ground. When directed by the Engineer, the Contractor shall sample and test all material that appears inconsistent with similar material being sampled. The Engineer shall retain the right to sample and test the slurry at any time during the project.

    b. Monitoring - The Contractor shall continuously monitor the residue throughout the diamond grinding process to ensure that the pH levels are maintained below 12.5 or

above 2 prior to disposal or discharge. The pH control plan shall specify what actions will be taken in order to meet the requirements of a pH lower than 12.5 or above 2.

c. Neutralization of pH - If the test results indicate the grinding residue or slurry has a pH greater than 12.5 or less than 2, which is corrosive hazardous waste, then the Contractor shall neutralize the pH prior to discharging or contain the slurry and manage the slurry as a hazardous waste. The Contractor shall neutralize the pH by altering the pH to be greater than 2 or less than 12.5 if the Contractor elects to neutralize the pH before, during, or after generation. If the Contractor elects to neutralize the pH after generation, the neutralization must occur in a container, tank or a transport vehicle. The Contractor shall follow subsection 715.A of the Standard Specifications for Construction for worker training, training program, contingency plan, records, etc. The contingency plan shall address how accidental spills or releases of hazardous waste will be contained and cleaned up.

d. Managing – The Contractor shall manage the grinding residue or slurry to prevent release of a hazardous waste and to neutralize the pH when necessary prior to disposal or discharge.

e. Collecting and Hauling – If the grinding residue or slurry is generated, collected and hauled with a pH greater than 12.5, then a licensed hazardous waste hauler is required to transport the material. Prior to transport off the project site, a site identification number must be obtained as described in paragraph 3.a below. A uniform hazardous waste manifest is required for each load if the material is being disposed of at a hazardous waste facility. Use Uniform Hazardous Waste Manifest, EPA Form 8700-22. If the slurry is non hazardous, then the material can be treated as a liquid industrial waste and can be hauled by either the diamond grinding contractor with MDEQ generator identification or transport identification number, or a licensed liquid industrial waste hauler shall transport the material. See below for “Options for the Diamond Grinding Slurry”.

2. **Disposal Requirements for Diamond Grinding Pavement Slurry (Non Hazardous Only).**

a. The Contractor shall not allow the discharge of the diamond grinding residue or slurry to enter a closed drainage system. In these areas, the residue or slurry shall be collected, hauled, and managed as specified under “Options for the Diamond Grinding Slurry.”

b. The Contractor shall obtain approval for the spreading method from the Engineer prior to the beginning of the diamond grinding operation. The Contractor shall apply the slurry at a uniform rate not to exceed 5 dry tons of diamond grinding slurry an acre to the site within MDOT right of way. This equates to applying the slurry to an area approximately three times the amount of area being diamond ground. The Contractor may spread the non hazardous grinding residue or slurry along the shoulders or slopes of the roadway, a minimum of 5 feet from the edge of curb, and per approval from the Engineer. The residue or slurry may not be spread within 100 feet of any natural stream or lake, within 5 feet of a water filled ditch, or such that the spread rate generates surface runoff. If any these conditions are present then the contractor shall collect, haul, and manage the residue or slurry per as specified under “Options for the Diamond Grinding Slurry.”

3. **Options for the Diamond Grinding Slurry (Non Hazardous Only).**

a. Generator or Transporter Identification Number - A generator or transporter identification number is required prior to collection and hauling of the diamond grinding slurry since it is classified as a liquid industrial waste. The generator or transporter identification number can be obtained from the Michigan Department of Environmental Quality (MDEQ), Waste and Hazardous Materials Division (WHMD) Notification Unit, PO Box 30241, Lansing MI 48909-7741 by completing the MDEQ Form EQP5150, Site Identification Form. For copies and instructions of the form see the MDEQ website at www.michigan.gov/deq or call 517-335-2690. In order to register as a liquid industrial waste generator, check the box on Page 2 of the form under Section X. Type of Regulated Waste Activity, Subsection E, Liquid Industrial Waste Activities at this location, check all that apply: box 1, Liquid Industrial Waste Transporter or box 2, Liquid Industrial Waste Generator. If the diamond grinding contractor does not have a generator or transporter identification number, then the contractor can use the MDOT Region's Liquid Industrial Waste identification number for the generator number provided the waste is non hazardous and the contractor will be required to use a licensed liquid industrial waste hauler to transport the non hazardous diamond grinding slurry. If the diamond grinding contractor is listed as the generator of the waste and has a generator identification number, then the diamond grinding contractor can transport the diamond grinding slurry.

b. Land Application Option for Diamond Grinding Concrete Pavement Slurry - This work consists of collecting, handling, transporting, manifesting, and managing the application of the diamond grinding concrete pavement slurry within MDOT right of way. All work shall be according to the "MDEQ Grinding Slurry Exemption" dated October 30, 2003 and this special provision.

   i. Transporting - The diamond grinding Contractor with a generator or transport identification number or a licensed liquid industrial waste hauler shall transport the diamond grinding slurry from the diamond grinder to the approved site within MDOT right of way. The slurry shall be covered so as to prevent loss to the environment during transport and delivery to the application site.

   ii. Manifests - A waste disposal manifest shall be prepared by the Contractor with copies to Engineer which contains information on the point of generation including roadway, roadway direction, and mile points, the volume transported, and the application area including roadway, direction, and mile points where the diamond grinding slurry is to be applied. A waste disposal manifest is required for each load. Use Uniform Hazardous Waste Manifest, EPA Form 8700-22.

   iii. Application - The Contractor shall apply the slurry at a uniform rate not to exceed 5 dry tons of diamond grinding slurry an acre to the site within MDOT right of way. This equates to applying the slurry to an area approximately three times the amount of area being diamond ground. The slurry shall not be applied in a manner that adversely restricts soil permeability or causes ponding, pooling, or runoff in the area. The site of application shall be designated by the Engineer in the plans and meet the requirements as listed in earlier in the special provision "Disposal Requirements for Diamond Grinding Pavement Slurry (Non - Hazardous Only)." The application of the slurry shall not be applied to an application site unless the water table is at least 30 inches below the surface of the soil at the time of application.

   iv. Liquid Waste Exemption - Land application of concrete grinding slurry managed

according to the October 30, 2003 MDEQ WHMD Part 115 Concrete Grinding Slurry Exemption, and according to this special provision, has been determined by MDEQ to be authorized in accordance with to an applicable statute and therefore exempt from the Part 121, Liquid Industrial Waste of the Natural Resources and Environmental Protection Act, 1994 PA 45, prohibition on discharge to soil found in Section 12113(2)(a).

c. Disposal Option of Diamond Grinding Concrete Pavement Slurry - This work consists of collecting, handling, transporting, manifesting, and managing the non hazardous liquid industrial waste disposal of the diamond grinding concrete pavement slurry for projects where the slurry is collected and hauled. All work shall be according to the "MDEQ Grinding Slurry Exemption" as dated October 30, 2003 and this special provision.

   i. Transporting - The diamond grinding contractor with a generator or transport identification number or a licensed industrial waste hauler shall transport the diamond grinding slurry from the diamond grinder to a licensed Type II municipal landfill or a licensed wastewater treatment facility. The slurry shall be covered so as to prevent loss to the environment during transport and delivery to the licensed facility.

   ii. Manifests - A waste disposal manifest shall be prepared by the Contractor or the licensed industrial waste hauler with copies to the Engineer which contains information on the point of generation including roadway, roadway direction, and mile points, the volume transported, and the licensed facility. A waste disposal manifest is required for each load. Use Uniform Hazardous Waste Manifest, EPA Form 8700-22. Include MDOT project site location information in block 14 of the manifest.

   iii. Solid Waste Facility - The diamond grinding slurry may be disposed of in a Type II municipal landfill licensed pursuant to Part 115 of Solid Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451), provided the disposal is consistent with the landfill's waste acceptance policies and the slurry is solidified sufficiently to pass the paint filter test.

   iv. Licensed Liquid Industrial Waste Facility - The diamond grinding slurry may also be processed as a liquid industrial waste at a licensed liquid industrial waste facility pursuant to Part 121 Liquid Industrial Waste, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Act 451), facility provided the disposal is consistent with licensed liquid waste facility processor acceptance policies.

d. Dewatering Option for Diamond Grinding Concrete Pavement. This work consists of the diamond grinding Contractor using a mechanical separation method to dewater, reduce, reuse, and recycle portions of the diamond grinding concrete pavement slurry for projects with enclosed drainage systems. The dewatering site shall be located within MDOT right of way or with a site associated with the project. All work shall be according to the Standard Specifications for Construction, Section 603 except as modified herein and the "MDEQ Dewatered Grinding Slurry Exemption".

   i. Transporting - The diamond grinding Contractor with a generator or transport identification number or a licensed industrial waste hauler shall transport the diamond grinding slurry from the diamond grinder to the dewatering site. The slurry

shall be covered so as to prevent loss to the environment during transport and delivery to the application site.

ii. Manifests for Slurry - A waste disposal manifest shall be prepared by the Contractor or a licensed industrial waste hauler with copies to the Engineer which contains information on the point of generation including roadway, roadway direction, and mile points, the volume transported, and the licensed facility. A waste disposal manifest is required for each load. Use Uniform Hazardous Waste Manifest, EPA Form 8700-22. See page 7 for an approved grinding slurry tracking form.

iii. Dewatering - The diamond grinding slurry shall be separated into solid and liquid phases at the dewatering site. The Contractor shall propose a dewatering method which will separate the solid and liquid from the slurry. (Mobile belt filter press, centrifuge tanks, or other separation methods may be submitted for approval.) No unlined or lined pits are permitted at this time.

iv. Dewatering Site Location - The dewatering site shall either be located within the project limits on MDOT Right of Way or at an off site location associated with the project. For example, a Contractor staging area, Contractor's yard, concrete crushing facility, concrete plant, etc). MDEQ shall be notified of the location of any off site dewatering sites. Contact Duane Roskosky, Environmental Quality Specialist, Waste and Hazardous Materials Division, Michigan Department of Environmental Quality, P. O. Box 30241, Lansing, MI, 48909-7741. Copies of the notification shall be provided to the Engineer.

v. Solid - The solid material from the separation facility shall be properly disposed of in a Type II landfill. Storage of the solid material greater than 60 days at any project or dewatering location will require the material to be covered per the "MDOT Dewatered Grinding Slurry Exemption." The MDEQ shall be notified of the location of any stockpiles of dewatered solid material. See notification information as listed under "Dewatering Site Location".

vi. Liquid - The liquid material from the separation facility shall be collected and recycled for reuse for the diamond grinding operation. After the diamond grinding is complete, the remaining decant liquid shall be disposed of at a licensed liquid industrial waste facility provided the disposal is consistent with licensed liquid waste facility processor acceptance policies.

vii. Manifests for Decant Liquid - The decant liquid shall be manifested from the processing site to the licensed liquid industrial waste facility. The diamond grinding contractor with a generator or transport identification number or a licensed industrial waste hauler shall transport the decant water. The decant liquid shall be covered so as to prevent loss to the environment during transport and delivery to the licensed liquid industrial waste facility. Use Uniform Hazardous Waste Manifest, EPA Form 8700-22. Include MDOT project site location information in block 14 of the manifest.

4. **Contractor Responsibility for Method of Operations.** The Contractor is required to comply with all federal, state and local laws. This specification is intended to set forth minimum steps to avoid violating environmental laws. It remains the responsibility of the Contractor to determine whether more than those minimum steps may be required and then, at the expense of the Contractor, to perform the work required by this contract in whatever

manner may be required to comply with applicable laws. The Contractor is liable to the Department for any fines, costs, or remediation costs incurred by the Department as a result of the Contractor's failure to be in compliance with this specification and all federal, state and local laws.

5. **Records.** MDOT shall maintain a copy of all manifests for a period of 3 years and make available to the Michigan Department of Environmental Quality (MDEQ) upon request.

6. **Measurement and Payment.** All costs associated with the sampling, testing, monitoring ph, neutralizing ph, collecting, handling, transporting by contractor or licensed liquid industrial waste hauler, manifesting the waste, and managing the diamond grinding slurry, will not be paid for separately but will be included in the payment for Diamond Grinding Concrete Pavement.

MDOT DIAMOND GRINDING SLURRY TRACKING LOG

Control Section/Job Number_____ **Generator ID Number**_____

Delivery Engineer_____

Project Description and Location_____

Route and Dewatering Unit Location_____

Prime Contractor_____ **Diamond Grinding Contractor (transporter)**_____

Date	Volume	Project Section/Origin	Driver's Signature	Destination: Designated Dewatering Unit	Dewatering Unit Operator Signature

Michigan Department of Environmental Quality requires that a summary of liquid industrial waste movement on this form be supplied on a yearly basis (Jan. 1 - Dec 31).

DIAMOND GRINDING SLURRY PH TESTING LOG

Control Section/Job Number________________________________

Delivery Engineer__________________________________

Project Description and Location____

Route ____

Prime Contractor_______________________________ **Diamond Grinding Contractor** ___________________________________

Date	pH	Test Method	Volume (gallons)	Accumulated Volume (gallons)	Location (Stationing)	Sample split with Laboratory	Lab pH results	Field Tester's Signature
		☐ pH meter ☐ pH tape				☐ Yes ☐ No		
		☐ pH meter ☐ pH tape				☐ Yes ☐ No		
		☐ pH meter ☐ pH tape				☐ Yes ☐ No		
		☐ pH meter ☐ pH tape				☐ Yes ☐ No		
		☐ pH meter ☐ pH tape				☐ Yes ☐ No		
		☐ pH meter ☐ pH tape				☐ Yes ☐ No		
		☐ pH meter ☐ pH tape				☐ Yes ☐ No		
		☐ pH meter ☐ pH tape				☐ Yes ☐ No		
		☐ pH meter ☐ pH tape				☐ Yes ☐ No		
		☐ pH meter ☐ pH tape				☐ Yes ☐ No		
		☐ pH meter ☐ pH tape				☐ Yes ☐ No		